

CLAIMS

1. A multi-regime, continuously variable ratio transmission system, comprising:
 - a system input shaft and a system output shaft;
 - 5 a continuously variable ratio transmission unit (variator) connected to the system input shaft and having a variator output shaft;
 - an output from the variator which is selectively connectable to the system output shaft via a first clutch;
 - 10 a mixing epicyclic gear train having inputs drivably connected to the variator output shaft and the system input shaft and having an output which is selectively connectable to the system output shaft via a first braking element; and
 - 15 a second braking element adapted to lock the output of the mixing epicyclic gear train in a stationary position.
2. A transmission system as claimed in claim 1, wherein the system input shaft, the system output shaft and the variator are arranged coaxially with each other and with a second epicyclic gear train comprising a second input sun gear driven by an output of the mixing epicyclic gear train and wherein the second braking element is adapted to selectively lock the input sun gear of the second epicyclic gear train in a stationary position.
- 20 3. A transmission system as claimed in claim 2, comprising intermediate gearing connecting the mixing epicyclic gear train and the input sun gear of the second epicyclic gear train.
4. A transmission system as claimed in claim 2 or claim 3, wherein the second epicyclic gear train comprises a second sun gear engaged with a planet gear.
- 25 5. A transmission system as claimed in claim 4, wherein the second sun gear is held stationary with respect to the transmission casing and wherein the first braking element comprises clutch means for selectively connecting the output of the second epicyclic gear train to the system output shaft.

6. A method of operating a transmission system as claimed in any of the preceding claims, comprising:

detecting a condition in which the output from the variator is connected to the system output shaft via the first clutch and in which the mixing epicyclic gear train output is substantially stationary; and

applying the second braking element to lock the output of the mixing epicyclic gear train in the stationary position.

7. A transmission system substantially as herein described with reference to, and as illustrated in, the accompanying drawings.

10 8. A method of operating a transmission system substantially as herein described with reference to, and as illustrated in, the accompanying drawings.